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Ophthalmia

No. I. a.

MINISTRY OF THE INTERIOR, EGYPT.

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2<sup>nd</sup> Annual

# REPORT

ON THE

## OPHTHALMIC SECTION

OF THE

DEPARTMENT OF PUBLIC HEALTH,

1913,

BY

THE DIRECTOR OF OPHTHALMIC HOSPITALS.



CAIRO.  
GOVERNMENT PRESS.

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Geological Museum, Ministry of Public Works Gardens.

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*Cairo, March 31, 1914.*

SIR,

I have the honour to enclose my Report on the Ophthalmic Hospitals and on Ophthalmic Progress in Egypt during the year 1913.

I have the honour to be,

Sir,

Your obedient servant,

A. F. MACCALLAN,

*Director of Ophthalmic Hospitals.*

The Director-General,

Department of Public Health,

Cairo.



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# REPORT ON THE OPHTHALMIC SECTION, 1913.

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## I.—INTRODUCTION.

A description of the origin in 1903 of the campaign which led to the establishment in Egypt of special hospitals for diseases of the eye was given in the first Annual Report of the Ophthalmic Section of the Department of Public Health, 1912. A synopsis of the functions and of the approximate cost of the different varieties of hospitals which the needs of Egypt have called into being is appended to this Report (*see* Statistics, Tables I, II, III).

*Number of Hospitals.*—The number of hospitals at work during 1913 was 12; four of these were opened during the course of the year.

*Travelling Hospitals.*—The travelling hospitals have well maintained their popularity among the *fellahîn*; they present the great advantage that with a limited sum of money a certain amount of ophthalmic relief can be distributed in many districts; though the inhabitants of some of the more important district towns (other than capital towns of provinces) naturally are in favour of exchanging a travelling hospital, which moves about frequently at a distance from them, for a permanent hospital in their own town.

*Permanent Hospitals.*—Permanent hospitals, which form the backbone of the Egyptian system of ophthalmic relief, have been built in seven of the principal towns, and arrangements for building in the capital towns of five other provinces have been completed.

There still remain four provinces which are unprovided with any form of ophthalmic relief, including those in which are situated the pyramids at Gîza, the tombs at Saqqâra, the temples at Luxor and Karnak, and the great dam at Aswân.

*Staff and their training.*—The surgical work of the hospitals is maintained by twenty-one Egyptians, who have obtained their medical diplomas at the Government Medical School, and have spent not less than two years in the post-graduate study of ophthalmology at the ophthalmic hospitals, where annually a six weeks' course of lectures and practical pathological course are given by the Director and the Inspecting Surgeons, of whom three are English and one Egyptian.

*School Inspection.*—Ophthalmic inspection of all the Government primary schools and of a certain number of the infant schools will be commenced at the beginning of the next school session. This will be based on the experience gained during the last seven years at Tanta school, where systematic inspection and efficient treatment have been carried on.

*Finances.*—The annual Government grant for the maintenance of the ophthalmic organization and ophthalmic hospitals has risen to L.E. 17,305; this includes the interest on the Cassel Fund: in addition L.E. 3,300 has been granted by the various Provincial Councils. A total of L.E. 20,605 is therefore available each year for the relief of eye disease.

*Clinical Work.*—The actual sum spent last year on hospital maintenance, not including Central Administration expenditure, was L.E. 12,165. For this sum, 40,670 new patients were treated; 544,267 attendances were made by out-patients; 35,046 daily diets were issued to 1,807 in-patients; and 30,648 operations were performed.

*Blindness.*—Out of 62,233 persons examined at the hospitals during the year, 9,238, or nearly 15 per cent, were found to be blind in one or both eyes.

*Means of Relief.*—The means of ophthalmic relief which have been decided to be the most useful for Egypt are a permanent built hospital or its equivalent in the capital town of each province, provided locally but maintained by the Government, and a travelling tent hospital, with accommodation for a few in-patients, provided and maintained by each Provincial Council. From each of these centres will develop various branches of work, including treatment of the pupils in the schools, lectures on ophthalmic hygiene, distribution of pamphlets giving instructions for the prevention of infection, provision of first aid in eye diseases in the remoter villages, talks in simple language to collections of women on the necessity of cleanliness for their children and on the way in which it should be effected. Money, skilled labour, and time, will gradually work a vast improvement among a people who are intensely anxious to avail themselves of the ophthalmic relief which is at present available.

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## II.—WORK AND PROGRESS DURING 1913.

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### A.—TRAVELLING HOSPITALS.

The two large travelling hospitals known as the Cassel Fund Hospitals have worked at Gîza, Abu Hommos, Shebîn el Qanâter, Menûf, and Maghagha.

The period spent at each locality was six months. The localities already visited by the hospitals are Damietta, Mansûra, Menûf, Shebîn el Kôm, Qaliûb, Benha, Shebîn el Qanâter, Zagazig, Damanhûr, Abu Hommos, Rosetta, Zifta, Gîza, Fayûm, Beni Suef, Minia, Maghagha, Assiût, Sohag, Luxor, and Aswân.

The travelling hospital belonging to Assiût Provincial Council continues to do good work. It has visited Abnûb, Abu Tîg, Badari, and Manfalût.

The travelling hospital belonging to Daqahlîa Provincial Council was opened by Lord Kitchener on June 16, 1913. The towns of Simbellawein and Dekernes have been visited by it.



The two travelling hospitals belonging to the Provincial Council of Gharbîa were closed during the greater part of the year. It is to be hoped that the next financial year will be more propitious for their re-establishment.

### B.—PERMANENT HOSPITALS.

At the permanent hospitals at Tanta, Assiût, Mansûra, and Beni Suef satisfactory work was done. New hospitals were opened at Zagazig, Mehalla el Kubra, and Kafr el Zayât. The Zagazig hospital was built at the expense of the Provincial Council of Sharqîa; it was equipped and is maintained by the Government. The hospitals of Mahalla el Kubra and Kafr el Zayât were built, equipped, and are maintained by the Provincial Council of Gharbîa.

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### III.—CLINICAL.

*Number of Cases.*—The number of new cases treated has risen during the last year to 40,670, and the total attendances of out-patients to 544,267, the average number of visits of each patient to the hospital being 13·3. Only such a number of patients are accepted for treatment as can be thoroughly examined and as can receive the requisite treatment, including operation when necessary. Besides those patients treated, 15,850 were postponed on various occasions because there was no available time to treat them efficiently; many of these, returning to the hospitals on days when the pressure was less severe, were treated or were operated on.

*Entropion Operations.*—It is usually impossible to do operations for all the patients who desire relief for trichiasis entropion (in-growing eye-lashes). 11,700 operations for this distressing condition were done, the operations usually performed being the operation devised by Snellen somewhat modified,\* or the grafting of mucous membrane from the lip to the eyelid devised by Van Millingen.

*Age of Patients.*—It is noteworthy that nearly one-third of all the patients treated were under the age of one year.

*Cataract.*—288 extractions of senile cataract and 167 operations for the removal of juvenile cataract were performed. These cases only represented a small number of the cataract cases actually seen, which amounted to 1,917. The reason so few of them were actually operated upon is that the condition either of the cornea or of the eyelids forbade it. It must be remembered that operations by charlatans for trichiasis entropion annually spoil thousands of eyes. The association of cataract with the anæmia of ankylostomiasis, which is so prevalent in Egypt, was pointed out by Dr. Waddy, one of the ophthalmic inspectors, in a paper read before the Ophthalmological Society of Egypt at the annual meeting, 1914.

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\* See "Trachoma and its Complications in Egypt," by MACCALLAN, Cambridge University Press.

*Glaucoma.*—Glaucoma simplex is an extremely frequent condition, being met with in 3·43 per cent of all the cases examined.

	1912.	1913.
GLAUCOMA CASES :—		
Primary acute ... ..	3	12
„ sub-acute ... ..	10	17
„ chronic ... ..	829	902
Absolute glaucoma ... ..	282	217
OPERATIONS FOR GLAUCOMA :—		
Iridectomy for primary ... ..	60	28
Trephining with iredectomy ... ..	152	317

The number of cases of blindness seen in Egypt in the six years, including 1913, of which there are accurate records (out of 269,187 patients examined), was 36,281. Of these the following were due to primary glaucoma :—

Monocular ... ..	1,946
Binocular ... ..	2,464

At the Egyptian ophthalmic hospitals, Elliott's operation of trephining the corneo-sclera for primary glaucoma has almost entirely superseded the classical iridectomy operation, which was the only one performed until towards the end of 1911. The reasons are several :—

First, the ease with which the operation can be performed by an expert operator and with which the technique of the operation can be taught to Egyptian surgeons.

Secondly, the operation can in all except acute cases and in very nervous patients be performed under the local anæsthesia of cocaine and adrenaline.

Thirdly, the results of the operation as regards diminution of tension are better after trephining than after the classical iridectomy operation.

Fourthly, the complications of the operation, when combined with iridectomy through the trephine hole, are almost non-existent.

Fifthly, the operation can be successfully carried out in many blind painful glaucomatous eyes, thereby saving the globe ; I have only seen one case of expulsive hæmorrhage occurring in such cases.

Sixthly, the operation can and should be performed for a patient on an unaffected eye, as soon as the fellow eye has been definitely diagnosed as glaucomatous, since the operation is almost devoid of risk, and early operation is prophylactic against the development of increased tension, glaucoma usually affecting both eyes sooner or later.

The following notes occur to me as useful :—

(1) In old people the conjunctiva is sometimes very friable. In such cases it may be better to do the classical iridectomy operation.

(2) In turning down the conjunctival flap it should never be taken hold of with the forceps, which may tear it. The conjunctiva should be picked up with the iris forceps, and after having been nicked with the scissors, should be stroked down on to the cornea with the convex side of the closed iris forceps, during the splitting of the corneal lamellæ.



(3) The flap does not need stitching after the operation.

(4) The splitting of the cornea is much more difficult in our cases in Egypt, in nearly all of which there is or has been trachoma, than in ordinary cases seen in Europe, owing to the cicatrization in the superficial layers of the cornea in old cases and owing to the pannus in recent cases. The bleeding that occurs can be checked by adrenaline. Any kind of knife may be used for the splitting, but I prefer Landolt's broad-bellied scalpel, with which I performed all lid operations.

(5) The trephine must be sharp and should be carefully examined before the operation by the operator himself.

Any variety of instrument may be used, but I now use a 1.5 millimetres Bronner's trephine. The circular movements made with the trephine after its applications should be bold while remaining careful. Loss of the trephine disc in the anterior chamber is without importance, but rarely occurs with a sharp instrument and a practised operator. It may be fished out with a spatula or lens hook if desired. A thin lamella or corneo-sclera (a trap door) is sometimes left in the depth of the wound by a careless operator; the result is failure to reduce tension permanently. The position of the trephine hole should not be too far forwards in cases of old trachoma where the cornea is considerably cicatrized, as the resulting œdema is deficient in such cases.

(6) Iridectomy through the trephine hole by a single snip of the scissors is invariably performed at the Egyptian ophthalmic hospitals. No iritis then follows the operation and no atropinization is necessary. The advisability of producing miosis by eserine before operating is perhaps an elementary hint, but it should be remembered that both cocaine and adrenaline \* raise the tension and dilate the pupil. It is therefore advisable to alternate eserine with cocaine during the production of anæsthesia and to only instil adrenaline immediately before putting in the speculum. Personally I always wear a gauze mask and very thin indiarubber gloves.

The adoption of the operation has enabled me to confide the operation to all my Egyptian assistants who have had two years' experience of constant operating practice in the ophthalmic hospitals.†

When the classical iridectomy, the peripheral corneo-scleral incision being made with a Graefe's knife, was the only operation in vogue, primary glaucoma cases were only operated upon by one of the senior surgeons.

*Trachoma.*—About 96 per cent of the Egyptians are afflicted with trachoma. Details of the classification of the stages of the disease adopted at the Egyptian ophthalmic hospitals and of the treatment usually carried out were given in my last report.

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\* MACCALLAN: "Transactions of the Ophthalmological Society," Vol. XXIII.

† Also see paper by EL RASHEED in the "Bulletin of the Ophthalmological Society of Egypt," 1913.

#### IV.—SCHOOLS AND KUTTABS.

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##### A.—SCHOOLS.

An elaborate system of ophthalmic inspection and treatment has been carried out during the last six years at the Government Primary School at Tanta. This has been done at the expense of the Department of Public Health and by means of the ophthalmic staff of this Administration.

The measures adopted include the active surgical repression of trachoma, the correction of errors of refraction with the gratuitous provision of spectacles, isolation and treatment of cases of acute conjunctivitis, and the preparation of detailed statistics.

The methods of treating trachoma carried out at the school do not differ from those in use at the Egyptian ophthalmic hospitals; they vary with the stage of the disease and detailed descriptions are available in ophthalmic literature.\*

*Trachoma.*—The number of pupils affected by trachoma in the school of about 400 pupils has only varied slightly during the period of treatment and has remained about 96 per cent. As infection with the disease usually occurs during the suckling period, it is inconceivable that school treatment can influence the incidence of the disease.

The more contagious cases of trachoma (stages I and II of the disease) in 1907 amounted to nearly 60 per cent of the total number of pupils in the school. These cases have been reduced to about 7 per cent in 1913.

The completely cicatrized cases of trachoma (stage IV) in which a cure has resulted have been increased from 2 per cent in 1907 to 55 per cent in 1913 (Statistics, Table VIII).

At the beginning of every school year (October) there is an influx of contagious cases of trachoma into the school, 55 per cent of the first-year pupils being affected with trachoma of this nature at the beginning of the session. However, by the end of the session, treatment has reduced this proportion to less than 9 per cent (Statistics, Table VIII, paras. 5 and 6).

The number of pupils treated regularly was 130, or about one-third of the total number of pupils in the school. Of this number about 81 per cent were substantially benefited, as compared with 39 per cent whose trachomatous condition improved although it was untreated. These untreated cases include the healthy cases and those trachomatous cases in which cicatrization had begun (trachoma, stage III) satisfactorily, and in which the evolution of the disease might be expected to progress normally.

Sixty pupils, or about half those treated, were subjected to surgical treatment of the trachomatous conjunctiva by scraping, grattage, etc. These operations were all performed at the local ophthalmic hospital.

*Vision.*—Estimation of refraction was made by retinoscopy under atropin, checked by subjective testing of all pupils who did not get 6/12 vision and in whom the corneæ were fairly clear.

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\* Practical Medicine, Series 1911 : "The Eye," by WOOD. The Year Book Publishers, Chicago. "Trachoma and its Complications in Egypt," by MACCALLAN, Cambridge University Press.



The Statistics (Table VIII, para. 3) give details of acuity of vision among the pupils. With the assistance, if required, of moderately strong spectacles (not greater than + or — 6 dioptries), about 47 per cent of pupils were found to enjoy good vision and 16 per cent fair vision, while 37 per cent had bad vision.\*

This result is not unsatisfactory; it shows that about 63 per cent of the pupils in school have sufficiently good vision to pass the visual acuity tests demanded previous to entering the Government service in a clerical position.

Only seven pupils had more than 6 dioptries of myopia, which has not increased during the time they have been under observation; in five of these cases both corneæ were nebulous, in two cases there was no nebula, but pannus was evident to the naked eye.

The main cause of subnormal vision (Statistics, Table VIII) is opacity of the cornea. This opacity is partly the result of the invasion of the corneal tissue by trachoma, but is more generally caused by ulceration of the cornea due to acute conjunctivitis.

In spite of the fact that about 50 per cent of the pupils had opacity of one or both corneæ, no evidence has been obtained in favour of the theory that myopia may be caused by this condition. In this connection it is interesting to observe that the acuity of vision improves with stay in the school (Statistics, Table VIII). If myopia was really caused by the corneal opacity, the prolonged use of the eyes at school would be followed by a startling depreciation of vision in a large proportion of those pupils with opaque corneæ. The reverse, however, is the case.

*Spectacles.*—The number of pupils who have been ordered spectacles and who are now attending the school is 82. On the date of the final inspection, 39 pupils were wearing their spectacles, and the supply of spectacles to 13 pupils was delayed by the maker; this leaves a difference of 30 pupils who had actually obtained spectacles but who were not wearing them, either because they were broken or for other reasons.

Besides the difficulty of keeping careless boys supplied with spectacles which they are constantly breaking, the constantly altering astigmatism is a difficult matter for the ophthalmic surgeon to deal with, as if cylinders are ordered they must be frequently changed.

The beneficial effect on the pupils of the primary school at Tanta, which has resulted from the ophthalmic treatment above described, during the last six years, has been so marked that the Government has decided to extend the system of treatment to the schools in other provincial capital towns where there is a permanent Government ophthalmic hospital. This will be carried out from the beginning of the school session 1914–1915.

#### B.—KUTTABS.

*Tanta.*—The total number of pupils examined on the days of inspection in the twenty-eight State-aided *kuttabs* was 2,278. The number of pupils who showed evidence of trachoma (*ramad el hebeibi*) was 2,123, or 93·2 per cent, of whom 38 per cent were in a definitely infective condition. The number of pupils who were blind in one eye was 65; the number of those blind in both eyes was 21.

While the inspection was carried out for the purpose of inquiring into the ophthalmic condition of the pupils, *kuttabs* which were dirty or overcrowded were noted, as their effect on the eyes of the pupils is injurious.

\* Good vision = 6/6 and 6/6, or 6/6 and 6/9, or 6/9 and 6/9.

Fair vision = 6/6 and 6/12, or 6/9 and 6/12, or 6/12 and 6/12, or 6/6 and 6/18.

Bad vision fails to attain any of the above standards.



The *kuttab*s which were dirty were seven in number. The *kuttab*s which were dirty and overcrowded were six in number. One *kuttab* was merely overcrowded.

*Assiût*.—The number of pupils examined in the fifteen State-aided *kuttab*s at Assiût town was 969. The number of pupils who showed evidence of trachoma was 894, or 92·4 per cent, of whom 56 per cent were in a definitely infective condition. The number of pupils who were blind in one eye was 34, none were blind in both eyes.

The *kuttab*s which were dirty were three in number. The *kuttab*s which were dirty and overcrowded were three in number. Two *kuttab*s were merely overcrowded.

## V.—BLINDNESS IN EGYPT.

From the examination of 62,233 patients in 1913, 11,361 eyes were found to be blind. The causes were as follows :—

Congenital	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12
------------	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	----

Acquired :—

Conjunctivitis resulting in :—

Total corneal opacity	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2,553
Shrunken globe	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2,647
Secondary glaucoma	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2,070
Other conditions	...	...	...	...	...	...	...	...	...	...	...	...	...	...	787

Fundus :—

Optic atrophy	...	...	...	...	...	...	...	...	...	...	...	...	...	...	100
Retinitis pigmentosa	...	...	...	...	...	...	...	...	...	...	...	...	...	...	29
Various	...	...	...	...	...	...	...	...	...	...	...	...	...	...	304
Detachment of retina	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1

Glaucoma absolutum :—

Monocular	...	...	...	...	...	...	...	...	...	...	...	...	...	...	553
Binocular	...	...	...	...	...	...	...	...	...	...	...	...	...	...	651
Cataract...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	930
Injury	...	...	...	...	...	...	...	...	...	...	...	...	...	...	63
Operation	...	...	...	...	...	...	...	...	...	...	...	...	...	...	23
Infectious disease	...	...	...	...	...	...	...	...	...	...	...	...	...	...	27
Iritis endogenous	...	...	...	...	...	...	...	...	...	...	...	...	...	...	224
Various	...	...	...	...	...	...	...	...	...	...	...	...	...	...	387

All patients were accounted blind who could not count fingers at a distance of one metre.

As was to be expected in a country in which various forms of acute conjunctivitis are rife, 70 per cent of the blindness resulted directly or indirectly from this condition.

The large number of cases blind from secondary glaucoma (2,070) points to the advisability of performing a prophylactic iridectomy as soon as possible after adhesion of the iris to the cornea has taken place.

An enumeration of the number of patients who were found to be blind, and a comparison with the total number of patients examined at the hospitals, is highly interesting :—

**Blindness.**

TOTAL NUMBER OF PATIENTS EXAMINED.	(a) MONOCULAR.		(b) BINOCULAR.		TOTAL (a) AND (b).	
	Number of Cases.	Per Cent.	Number of Cases.	Per Cent.	Number of Cases.	Per Cent.
62,233	5,360	8·61	3,878	6·22	9,238	14·84

It is seen that more than 14 per cent of the patients examined were blind in one or both eyes.

**Blindness.**

YEAR.	TOTAL NUMBER OF PATIENTS EXAMINED.	ONE EYE.		BOTH EYES.		ONE EYE AND BOTH EYES.	
		Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.
1906	40,103	1,297	3·2	663	1·6	1,960	4·9
1907	24,416	1,450	5·9	697	2·8	2,147	8·7
1908	19,614	1,189	6·0	852	4·3	2,041	10·4
1909	22,373	2,116	9·4	1,385	6·1	3,501	15·6
1910	25,506	2,438	9·5	2,010	7·8	4,448	17·4
1911	31,274	3,196	10·2	2,811	8·9	6,007	19·2
1912	43,668	4,115	9·4	2,824	6·4	6,939	15·8
1913	62,233	5,360	8·6	3,878	6·2	9,238	14·8
TOTAL...	269,187	21,161	7·8	15,120	5·6	36,281	13·4

The increasing percentage of blindness from 1906 to 1913 is significant of the greater care taken by the surgeons to make full clinical records of all cases of blindness seen among the hospital out-patients.



## VI.—STAFF.

The ophthalmic inspecting staff consists of Dr. Mohammed Tahir, Dr. E. V. Oulton, and Dr. Granville Waddy ; Dr. St. H. Horgan is just about to join. The staff of surgeons, twenty-one in number, are all Egyptian ; they continue to carry on highly satisfactory work under the careful supervision of the inspectors.

The post-graduate teaching of ophthalmic surgeons in Egypt is claimed to be of greater value for those intending to practise in this country than that to be obtained in Europe.

The interest shown by Egyptian surgeons in the annual meeting of the Ophthalmological Society of Egypt is praiseworthy.

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## VII.—OPHTHALMIC POLICY IN EGYPT.

It is now a settled policy in Egypt to extend ophthalmic relief by means of a permanent hospital in the capital town of each province, built and equipped by local effort and maintained by the Department of Public Health from funds granted by the Ministry of Finance. This is to be supplemented in some provinces by a travelling hospital with accommodation for a few in-patients, touring round the smaller towns, equipped and maintained by the Provincial Council and administered by the Director of Ophthalmic Hospitals on behalf of the President of the Provincial Council. This system has up to the present been carried on to the complete satisfaction of the Provincial Councils concerned and of the Department.

While the policy enunciated above is feasible and will probably be carried out during the next twenty years, it should be borne in mind that there is sufficient clinical material in every small town in Egypt to occupy the whole time of an ophthalmic surgeon.

Cheaper methods of ophthalmic relief than by permanent or travelling hospitals have been considered and have been rejected.

The eye diseases met with in Egypt are such that more than half the patients require to be operated upon. To carry out operations satisfactorily, conditions of asepsis must prevail in the operating room and skilled assistants (*tamurgis*) for the surgeon must be provided. There is therefore a minimum expenditure of about L.E. 600 a year for the cheapest form of ophthalmic dispensary built at a cost of about L.E. 1,500.

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VIII.—STATISTICS.

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TABLE I.—Amount and Varieties of Work Dealt with at Various Forms of Hospitals.

NATURE OF HOSPITAL.	WITH OR WITHOUT BEDS.	MONTHS WORKING DURING THE YEAR NOT LESS THAN	VARIETIES OF OPHTHALMIC DISEASE DEALT WITH.	NUMBER OF BEDS.	NUMBER OF NEW OUT-PATIENTS DEALT WITH PER DAY.	NUMBER OF OLD PATIENTS DEALT WITH PER DAY.
Permanent ... ..	With beds.	12	All.	14	20	200 — 300
	Without beds.	12	Strictly limited.	—	10	100 — 150
	Large camps with beds.	11	All.	12	20	200 — 300
Travelling... ..	Small camps with beds.	10	All.	6	10	100 — 150
	Small camps without beds.	10	Strictly limited.	—	10	100 — 150

TABLE II.—Cost of the Various Forms of Hospitals.

NATURE OF HOSPITAL.	WITH OR WITHOUT BEDS.	BUILDING.		EQUIPMENT.		MAINTENANCE.	
		Provided by	Cost.	Provided by	Cost.	Provided by	Cost.
Permanent ... ..	With beds.		L.E.		L.E.		L.E.
		Gift, subscription, or Provincial Council.	4,000	Government, gift, subscription, or Provincial Council.	1,000	Government.	1,500
		Provincial Council.	1,500	Provincial Council.	500	Provincial Council.	650
Travelling ... ..	Large camps with beds.	—	—	Cassel Fund.	850	Cassel Fund.	1,500
		—	—	Provincial Council.	720	Provincial Council.	900
		—	—	Provincial Council.	500	Provincial Council.	650



TABLE III.—Source of Provision and Maintenance of Hospitals.

	PROVIDED BY	MAINTAINED BY	DATE OPENED.
PERMANENT :—			
Tanta ... ..	Government grant.	Government grant.	1908
Assiût ... ..	Public subscription and Government grant.	Government grant.	1910
Mansûra... ..	Gift by Badrawi Pasha.	Government grant.	1912
Beni Suef ... ..	Public subscription.	Government grant.	1912
Zagazig ... ..	Provincial Council.	Government grant.	1913
Mahalla el Kubra...	Provincial Council.	Provincial Council.	1913
Kafr el Zayât ...	Provincial Council.	Provincial Council.	1913
Sohâg ... ..	Public subscription.	Government grant.	1914
Damanhûr ... ..	Provincial Council.	Government grant.	1914
Shebîn el Kôm ...	Public subscription.	Government grant.	1914
Minia ... ..	Provincial Council.	Government grant.	1914
TRAVELLING :—			
No. 1 Camp ... ..	Sir Ernest Cassel.	Sir Ernest Cassel.	1904
No. 2 Camp ... ..	Sir Ernest Cassel.	Sir Ernest Cassel.	1905
Gharbîa No. 1 ...	Provincial Council.	Provincial Council.	1911
Gharbîa No. 2 ...	Provincial Council.	Provincial Council.	1913
Assiût No. 1 ... ..	Provincial Council.	Provincial Council.	1912
Daqahlîa No. 1 ...	Provincial Council.	Provincial Council.	1913



TABLE IV.—Permanent and Travelling Ophthalmic Hospitals.

		1904.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.
HOSPITALS IN EXISTENCE :—											
1.—Travelling	... ..	1	2	2	2	2	2	2	3	4	5
2.—Permanent	... ..	—	—	—	—	1	1	1	2	4	7
New patients treated	... ..	2,954	4,210	7,327	7,446	7,794	12,092	14,342	20,488	28,029	40,670
Total attendance of out-patients	... ..	15,039	50,680	94,204	146,830	132,278	177,761	190,247	236,411	341,211	544,267
Operations performed	... ..	1,282	2,480	5,846	6,794	6,426	9,930	11,486	14,322	21,315	30,648
In-patients	... ..	49	140	202	184	208	390	443	678	909	1,807
DETAILS :—											
Patients examined	... ..	...	...	...	...	19,614	22,373	25,514	31,274	43,668	62,233
Patients regularly treated	... ..	...	...	...	...	7,794	12,092	14,342	20,488	28,029	40,670
Incurable cases...	... ..	...	...	...	...	4,550	2,302	1,776	2,620	7,200	9,544
Blind in one eye	... ..	...	...	...	...	1,189	2,116	2,438	3,196	4,115	5,360
Blind in both eyes	... ..	...	...	...	...	852	1,385	3,010	2,811	2,824	3,878
Trichiasis cases examined	... ..	...	...	...	...	8,159	10,060	7,507	7,871	13,176	17,329
Trichiasis cases operated on and cured...	... ..	...	...	...	...	2,262	3,128	2,022	3,933	6,942	11,700
NEW PATIENTS TREATED PER AGE :—											
Under 1 year	... ..	...	...	...	...	247	516	457	761	1,495	2,700
From 1 to 5 years...	... ..	...	...	...	...	585	1,645	1,497	1,903	3,317	4,631
” 6 to 10	” ...	...	...	...	...	902	1,442	4,469	2,101	3,210	4,786
” 11 to 15	” ...	...	...	...	...	849	1,294	1,475	2,051	3,056	3,799
” 16 to 20	” ...	...	...	...	...	829	1,156	1,499	2,067	2,588	3,253
” 21 to 40	” ...	...	...	...	...	2,584	3,775	4,845	6,116	8,167	12,679
41 and over...	... ..	...	...	...	...	1,798	2,206	3,100	5,589	6,196	8,822

TABLE V.

1.—IN-PATIENTS	... ..	1,807
Number of available beds	... ..	140
Number of diets issued...	... ..	35,046
2.—OPERATIONS : Total number (30,648) :—		
I.—Major (15,677) :—		
(a) Senile cataract ... ..		377
(b) Soft cataract ... ..		202
(c) Trichiasis ... ..		11,700
(d) Other operations ... ..		3,398
II.—Minor (14,971) :—		
(a) Scraping lids of trachoma patients...	... ..	8,347
(b) Other operations ... ..	... ..	6,624
3.—OUT-PATIENTS :—		
I.—Incurable ... ..		5,713
II.—Postponed... ..		15,850
III.—Tickets issued, i.e. new cases	... ..	40,670
IV.—Old cases ... ..		482,034
V.—Visits made by patients to hospital for treatment, I+II+III+IV		544,267
VI.—Average number of visits made to hospital by each patient under regular treatment (old cases + tickets issued)	Tickets issued.	
Factor of incurable cases neglected	... .. per cent ...	13·33
VII.—Discharges :—		
(a) Cured ... ..		3,975
(b) Relieved ... ..		5,645
(c) Incurable ... ..		3,831
(d) Spontaneously ceased to attend after having attended only once	... ..	5,741
(e) Spontaneously ceased to attend after having attended more than once	... ..	21,011
VIII.—Trichiasis cases seen among new out-patients :—		
(a) No previous operation having been performed	... ..	14,644
(b) Previous operation performed :		
(i) Successfully ... ..		655
(ii) Unsuccessfully (not at an ophthalmic hospital, but probably by charlatans)	... ..	2,685
IX.—Ophthalmoscope and refraction cases...	... ..	9,917
X.—General anaesthetics ... ..		5,521
XI.—Number of tickets inticket box on January 1, 1914	... ..	3,504
XII —Ages of patients examined :—		
(a) Under one year ... ..		2,700
(b) From 1 to 5 years ... ..		4,631
(c) „ 6 to 10 „ ... ..		4,786
(d) „ 11 to 15 „ ... ..		3,799
(e) „ 16 to 20 „ ... ..		3,253
(f) „ 21 to 40 „ ... ..		12,679
(g) „ 41 and over ... ..		8,822
	TOTAL ... ..	40,670
XIII.—Origin of patients :—		
Patients from :		
Town in which hospital is situated	... ..	17,668
Markaz in which hospital is situated...	... ..	14,729
Other markazes ... ..		8,273
	TOTAL ... ..	40,670
XIV.—Number of days' work :—		
Number of full days' work ... ..		2,651
Number of half-days, i.e. Government holidays (Fridays not counted) ... ..		14



TABLE VI.—List of Diseases.

**Ametropia :—**

Hypermetropia ... ..	210
Myopia ... ..	291
Astigmatism ... ..	128
Presbyopia ... ..	15

**Conjunctiva :—**

Conjunctivitis simple... ..	1,776
Conjunctivitis muco-purulent or purulent ... ..	5,228
Conjunctivitis gonorrhœal... ..	713
Other varieties ... ..	648
Trachoma I ... ..	3,012
Trachoma II ... ..	10,597
Trachoma III ... ..	18,736
Trachoma IV ... ..	1,793
Spring catarrh ... ..	1,923
Post-trachomatous degeneration ...	6,246
Phlyctenule... ..	1,185
Pterygium ... ..	734
Pinguecula ... ..	70
Xerosis... ..	205
Symblepharon ... ..	41
Dermoid ... ..	8
Other conditions :—	
Argyrosis... ..	15
Colloid degeneration ... ..	20
Hypertrophied caruncle ... ..	64
Injuries (foreign bodies, burn, etc.)...	34
Cyst ... ..	13

**Eyelids :—**

Pediculosis ciliaris ... ..	103
Trichiasis and entropion ... ..	13,222
Distichiasis... ..	36
Ectropion ... ..	217
Lagophthalmos ... ..	1,132
Blepharitis ... ..	4,066
Hordeolum ... ..	194
Wart ... ..	54
Meibomian cyst... ..	159
Chalazion ... ..	65
Eczema ... ..	48
Rodent ulcer ... ..	3
Dermoid ... ..	17
Ptosis ... ..	66
Erysipelas ... ..	2
Herpes... ..	8
Chancre ... ..	—
Epithelioma (rodent ulcer) ... ..	5
Other tumours ... ..	20

**Lacrymal Apparatus :—**

Lacrymal fistula... ..	32
Stenosis of the duct... ..	3
Dacryocystitis, acute ... ..	18
Dacryocystitis, chronic ... ..	274

**Cornea :—**

Ulceration, simple ... ..	1,955
Ulceration, hyopyon... ..	142
Ulceration, perforation ... ..	726
Ulceration, special forms... ..	10
Pannus ... ..	9,919
Keratitis, interstitial... ..	94
Keratitis, trachomatous ... ..	580
Nebula or leucoma ... ..	17,179
Adherent leucoma ... ..	4,756
Totally opaque cornea ... ..	1,965
Staphyloma ... ..	1,026
Xerosis of cornea ... ..	277
Abscess of cornea ... ..	20
Conical cornea ... ..	353
Injuries (burn, foreign bodies, etc.)	117

**Iris :—**

Anterior Synechia ... ..	825
Posterior Synechia ... ..	301
Inflammation ... ..	277
Iris Bombé ... ..	10
Irido-dialysis ... ..	30
Congenital coloboma... ..	11
Aniridia ... ..	3
Persistent pupillary membrane ...	1

**Sclerotic :—**

Ciliary staphyloma ... ..	220
Episcleritis ... ..	7
Injuries ... ..	11

**Choroid :—**

Coloboma ... ..	2
Rupture ... ..	1
Disseminated choroiditis... ..	25
Choroido-retinitis ... ..	25
Atrophy of choroid ... ..	23
Tumours ... ..	—
Albinismus ... ..	7

**Retina :—**

Retinitis, albuminuric and diabetic	7
Retinitis, syphilitic ... ..	9
Retinitis, pigmentosa ... ..	38
Detachment of retina ... ..	36
Embolism and thrombosis of retinal vessels ... ..	1
Glioma... ..	4
Other conditions ... ..	16

**Optic Nerve :—**

Neuritis ... ..	16
Atrophy ... ..	136
Other conditions ... ..	4

LIST OF DISEASES (*continued*).

<b>Lens :—</b>						<b>Glaucoma (<i>continued</i>) :—</b>					
Cataract, senile...	...	...	...	...	1,213	Primary, chronic	...	...	...	...	902
Cataract, soft	...	...	...	...	135	Secondary	...	...	...	...	1,977
Cataract, traumatic	...	...	...	...	33	Absolute	...	...	...	...	217
Cataract, lamellar	...	...	...	...	6						
Cataract, anterior polar	...	...	...	...	272						
Cataract, posterior polar	...	...	...	...	24						
Cataract, dislocated, traumatic	...	...	...	...	31	<b>Globe :—</b>					
Cataract, dislocated, operative	...	...	...	...	12						
Cataract, dislocated, congenital	...	...	...	...	20	Shrunken globe	...	...	...	...	2,686
Aphakia	...	...	...	...	156	Buphthalmos	...	...	...	...	34
Secondary cataract	...	...	...	...	15	Exophthalmic goitre	...	...	...	...	1
						Panophthalmitis	...	...	...	...	72
						Microphthalmos...	...	...	...	...	8
<b>Vitreous :—</b>											
Opacities	...	...	...	...	64	<b>Orbit :—</b>					
Foreign bodies	...	...	...	...	2						
						Tumours	...	...	...	...	8
<b>Muscles :—</b>						Cellulitis	...	...	...	...	9
Strabismus, alternating	...	...	...	...	82	Periostitis	...	...	...	...	1
Strabismus, convergent	...	...	...	...	1,085	Injuries	...	...	...	...	1
Strabismus, divergent	...	...	...	...	861	Cyst, frontal	...	...	...	...	2
Nystagmus...	...	...	...	...	356	Cyst, ethmoidal...	...	...	...	...	1
Paralysis	...	...	...	...	9	Contracted socket	...	...	...	...	3
<b>Glaucoma :—</b>						<b>Blind :—</b>					
Primary, acute	...	...	...	...	12	In one eye	...	...	...	...	5,360
Primary, sub-acute	...	...	...	...	17	In both eyes *	...	...	...	...	3,878

\* Patients are accounted blind who cannot count fingers at one metre.

TABLE VII.—List of Operations.

<b>Eyelids :—</b>		<b>Lacrymal Sac :—</b>	
For trichiasis and entropion :—		Excision ... ..	34
Snellen's ... ..	8,391	Various ... ..	77
Anagnostaki's... ..	196	Growth Sclera ... ..	1
Snellen-Anagnostaki's ... ..	413		
Canthoplasty ... ..	47		
Grafting mucous membrane... ..	1,879		
Electrolysis ... ..	698		
Excision of lash ... ..	17		
Other operations ... ..	68		
For ectropion :—		<b>Lens :—</b>	
Plastic ... ..	15	For senile cataract :—	
MacCallan's ... ..	17	Extraction with iridectomy ... ..	282
Kenneth Scott's ... ..	—	Extraction, after previous iridec-	
Kuhnt's ... ..	13	tomy ... ..	6
Other operations ... ..	9	For membrane after extraction :—	
For Symblepharon ... ..	87	Discission ... ..	156
For Hordeolum and Chalazion ...	349	For soft cataract :—	
Cyst removed ... ..	33	Extraction ... ..	2
Wart excised ... ..	37	Discission ... ..	76
Restitching wounds ... ..	13	Curette evacuation... ..	89
Abcesses ... ..	24	For membrane after extraction :—	
		Discission ... ..	21
		Paracentesis ... ..	27
		Capsulotomy ... ..	21
		Capsule extraction... ..	9
		<b>Globe :—</b>	
		Trephining of corneo-sclera with	
		iridectomy ... ..	317
		Excision ... ..	378
		Evisceration ... ..	70
		<b>Orbit :—</b>	
		Exenteration ... ..	3
		For Tumour ... ..	1
		For Dermoid ... ..	5
		For Cellulitis ... ..	4
		For cyst, frontal... ..	—
		For cyst, ethmoidal ... ..	2
		Cornea :—	
		Foreign body removed... ..	72
		Saemisch's Section... ..	19
		Cautery ... ..	17
		Tenotomy and advancement ... ..	18
		Other major operations ... ..	51

**Eyelids :—**

For trichiasis and entropion :—

Snellen's ... ..	8,391
Anagnostaki's... ..	196
Snellen-Anagnostaki's ... ..	413
Canthoplasty ... ..	47
Grafting mucous membrane... ..	1,879
Electrolysis ... ..	698
Excision of lash ... ..	17
Other operations ... ..	68

For ectropion :—

Plastic ... ..	15
MacCallan's ... ..	17
Kenneth Scott's ... ..	—
Kuhnt's ... ..	13
Other operations ... ..	9
For Symblepharon ... ..	87
For Hordeolum and Chalazion ...	349
Cyst removed ... ..	33
Wart excised ... ..	37
Restitching wounds ... ..	13
Abcesses ... ..	24

**Conjunctiva :—**

For trachoma :—

Expression ... ..	1,006
Scraping ... ..	7,586
Combined excision of Heisrath ...	245
Post-trachomatous degeneration...	5,774
Other operations ... ..	119
Pterygium ... ..	313

**Iris :—**

Iridectomy for adherent leucoma...	1,392
Iridectomy, visual ... ..	108
Iridectomy for glaucoma... ..	28
Iridectomy, preliminary, for cataract	2
Cystoid cicatrix... ..	5
Division of ant-synechia ... ..	6

**Lacrymal Sac :—**

Excision ... ..	34
Various ... ..	77
Growth Sclera ... ..	1

**Lens :—**

For senile cataract :—

Extraction with iridectomy ... ..	282
Extraction, after previous iridec-	
tomy ... ..	6

For membrane after extraction :—

Discission ... ..	156
-------------------	-----

For soft cataract :—

Extraction ... ..	2
Discission ... ..	76
Curette evacuation... ..	89

For membrane after extraction :—

Discission ... ..	21
Paracentesis ... ..	27
Capsulotomy ... ..	21
Capsule extraction... ..	9

**Globe :—**

Trephining of corneo-sclera with

iridectomy ... ..	317
Excision ... ..	378
Evisceration ... ..	70

**Orbit :—**

Exenteration ... ..	3
For Tumour ... ..	1
For Dermoid ... ..	5
For Cellulitis ... ..	4
For cyst, frontal... ..	—
For cyst, ethmoidal ... ..	2

Cornea :—

Foreign body removed... ..	72
Saemisch's Section... ..	19
Cautery ... ..	17
Tenotomy and advancement ... ..	18
Other major operations ... ..	51



TABLE VIII.—Tanta Government School.

(a) Number of pupils inspected in November...	...	...	...	...	...	...	...	...	370
(b) Number of pupils discharged since November	...	...	...	...	...	...	...	...	22
(c) Number of pupils inspected in November now attending ( $a - b$ )	...	...	...	...	...	...	...	...	348
(d) Number of pupils entered school since November...	...	...	...	...	...	...	...	...	12
(e) Number of pupils (total) now attending ( $c + d$ )	...	...	...	...	...	...	...	...	360
Percentage infected with trachoma	...	...	...	...	96.6				

(1) *Condition of Conjunctivitis.*

				PREVIOUS TO COMMENCEMENT OF TREATMENT AT SCHOOL 1907.		1912. BEFORE TREATMENT. CALCULATED ON 370 PUPILS.		1913. AFTER TREATMENT. CALCULATED ON 360 PUPILS.	
				Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.
Healthy	...	...	...	21	4.30	12	3.24	12	3.33
Conjunctivitis	...	...	...	—	—	19	5.13	5	1.38
Trachoma	I	...	...	78	16.00	8	2.16	14	3.88
„	II	...	...	211	43.50	62	16.75	10	2.76
„	III	...	...	165	34.00	246	66.48	126	35.00
„	IV	...	...	10	2.00	42	11.35	198	55.00

### (2) *Results of Treatment.*

Applied for treatment	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	142
Underwent	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	130
Untreated	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	218
Guardians advised to allow performance of minor operation at Ophthalmic Hospital	...															60
Guardians consented to allow performance of minor operation at Ophthalmic Hospital	...															57

*Condition Improved.*

Pupils treated : 106, or 81·53 per cent of those treated.

Pupils untreated : 85, or 38·99 per cent of those untreated.

(3) *Vision.*

### I.—GOOD VISION :—

(1) (a)	Normal vision in each eye 6/6 and 6/6	...	...	...	...	...	...	...	73
	(b)	Attains this standard with aid of spectacles not greater in strength than $\pm 6$ D	...	...	...	...	...	...	28
(2) (a)	Vision 6/6 and 6/9 or 6/9 and 6/9	...	...	...	...	...	...	...	49
	(b)	Attains this standard with aid of spectacles not greater in strength than $\pm 6$ D	...	...	...	...	...	...	29
(Total 179, or 46·85 per cent).									





TABLE VIII.—Tanta Government School (continued).

(6) Trachoma in its Relation to School Years.

After treatment.

(a) Numbers.

							HEALTHY.	TRACHOMA.				CONJUNCTIVITIS.
								(I).	(II).	(III).	(IV).	
YEAR	1	...	...	...	...	...	3	5	2	49	23	2
"	2	...	...	...	...	...	4	6	1	40	46	—
"	3	...	...	...	...	...	1	2	5	17	73	3
"	4	...	...	...	...	...	4	1	2	20	56	—
Total ...							12	14	10	126	198	5

(b) Percentage.

							HEALTHY.	TRACHOMA.				CONJUNCTIVITIS.
								(I).	(II).	(III).	(IV).	
YEAR	1	...	...	...	...	...	3·65	6·09	2·43	59·75	28·04	2·45
"	2	...	...	...	...	...	4·12	6·18	1·03	41·23	47·42	—
"	3	...	...	...	...	...	1·01	2·04	5·15	17·34	74·48	3·03
"	4	...	...	...	...	...	4·81	1·21	2·43	24·09	67·46	—

(7) Vision in Relation to School Years.

							YEARS.				PER CENT.			
							(I).	(II).	(III).	(IV).	(I).	(II).	(III).	(IV).
I.—Good vision	...	...	...	...	...	...	30	51	51	47	34·48	49·51	48·11	54·65
II.—Fair	"	...	...	...	...	...	18	14	16	18	20·68	13·59	15·09	20·93
III.—Bad	"	...	...	...	...	...	39	38	39	21	44·82	36·84	36·79	24·41

(8) Causes of Subnormal Vision.

When more than one of the following causes is present in the same or in both eyes only one is given ; order of importance 1, 3, 2.

	TOTAL.	PER CENT OF THOSE WITH SUBNORMAL VISION.	PER CENT OF TOTAL PUPILS EXAMINED.
1.—Corneal opacity or Anophthalmia ... ..	200	66·88	52·35
2.—Ametropia :—			
(a) Hypermetropia (including hyperme- tropic astigmatism) ... ..	57	19·06	14·92
(b) Myopia (including myopic and mixed astigmatism) ... ..	37	12·37	9·68
3.—Other causes :—			
(a) Iris, ciliary body and vitreous disease of	—	—	—
(b) Lens, opacity of ... ..	1	0·33	0·26
(c) Fundus, disease of ... ..	1	0·33	0·26
(d) Central nervous system. disease of ...	2	0·66	0·52
4.—Congenital ... ..	1	0·33	0·26

TABLE VIII.—Tanta Government School (*continued*).

(i) Both corneæ clear	...	...	...	...	...	...	...	...	...	...	182
(ii) One cornea clear, the other showing opacity	...	...	...	...	...	...	...	...	...	...	74
(iii) Opacity of both corneæ	...	...	...	...	...	...	...	...	...	...	126

(9) *Blindness.*

For this purpose pupils are considered to be blind who cannot count fingers at one metre

Number blind in one eye	...	...	...	...	...	...	...	...	10
Percentage blind in one eye	..	...	...	...	...	...	...	...	2·61

Individual Causes of Blindness.

TICKET NUMBER.	CAUSE.
964	L. Adherent leucoma.
660	L. Adherent leucoma.
914	R. Ant. Polar Cataract.
590	R. Leucoma.
778	R. Leucoma adherent.
785	L. Persistent pupillary membrane.
750	R. Optic atrophy.
625	L. Staphyloma.
628	L. Convergence amblyopia.
423	L. Staphyloma.

TABLE IX.—Kuttab.

	NUMBERS.		PERCENTAGES.	
	Tanta.	Assiût.	Tanta.	Assiût.
GENERAL :—				
Total number of kuttabs ... ..	28	15	—	—
Pupils, total number examined ... ..	2,278	969	—	—
Boys ... ..	1,721	950	75·5	98·0
Girls ... ..	557	19	24·5	2·0
Premises :—				
Clean ... ..	7	8	25·0	53·3
Dirty ... ..	21	7	75·0	46·7
Accommodation :—				
Sufficient ... ..	13	3	46·4	20·0
Insufficient... ..	15	12	53·6	80·0
OPHTHALMIC :—				
No trachoma ... ..	106	57	4·6	5·8
Conjunctivitis chronic ... ..	49	18	2·2	1·8
Trachoma :—				
Stage I ... ..	164	13	7·2	1·2
„ II <i>a</i> ... ..	984	124	43·2	20·9
„ II <i>b'</i> ... ..		56		
„ II <i>b''</i> ... ..		23		
„ II <i>c</i> ... ..		—		
„ III ... ..	939	648	41·3	66·8
„ IV ... ..	36	30	1·5	3·5
Conjunctivitis, acute ... ..	216	130	9·0	13·4
CORNEAL OPACITY :—				
Cicatrical ... ..	415	189	18·0	19·5
Gross pannus ... ..				
VISION :—				
Total number examined for vision ... ..	999	676	44·0	70·0
Good ... ..	330	425	33·0	63·0
Fair ... ..	173	79	17·0	11·6
Bad ... ..	496	172	50·0	25·4
Blind in one eye ... ..	82	41	3·6	4·0
„ in both eyes ... ..	13	9	0·5	1·0

Good vision = 6/6 and 6/6, or 6/6 and 6/9, or 6/9 and 6/9.  
Fair vision = 6/6 and 6/12, or 6/9 and 6/12, or 6/12 and 6/12, or 6/6 and 6/18.  
Bad vision fails to attain any of the above standards.



TABLE X.—Publications by the Ophthalmic Staff.

- 1.—FOUR YEARS' WORK WITH THE OPHTHALMIC HOSPITALS IN EGYPT. Published in English and Arabic. Read by the Director at the annual meeting of the British Medical Association, August 2, 1907. (*Reprints are out of print.*)
  - 2.—OPHTHALMIC CONDITIONS IN THE GOVERNMENT SCHOOLS IN EGYPT AND THEIR AMELIORATION. Published in English. "Ophthalmoscope," September 1907. Read by the Director at the British Medical Association. (*Reprints are out of print.*)
  - 3.—THE RELIEF OF EYE DISEASES IN EGYPT WITH SOME CONSIDERATION OF THE INCIDENCE OF BLINDNESS AND TRACHOMA. Read by the Director at the Sixteenth International Medical Congress, Budapest, September 1909. (*Reprinted in English and Arabic.*)
  - 4.—THE EGYPTIAN OPHTHALMIC HOSPITALS. Read by the Director at the Annual Meeting of the British Medical Association, 1910. (*Reprinted in English.*)
  - 5.—OPHTHALMIC HOSPITALS IN EGYPT. Printed in "Ophthalmic Record," U.S.A., 1910. (*Reprinted in English.*)
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  - 7.—LES DIVISIONS DU TRACHOME, LE TRAITEMENT DE CETTE AFFECTION ET DE SES COMPLICATIONS. "Archives d'Ophtalmologie," September 1911. By the Director.
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  - 13.—ACQUIRED JUVENILE CATARACT. SOME OBSERVATIONS UPON ITS INCIDENCE, ITS CHARACTER, AND ITS ASSOCIATION WITH ANÆMIA, ANKYLOSTOMA, AND PELLAGRA. Read by Dr. R. Granville Waddy at the annual meeting of the Ophthalmological Society of Egypt, 1914.
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